

SEQUENCE LISTING

<110> Jardetzky, Theodore S.
Wurzburg, Beth A.

<120> MUTANTS OF IgE PROTEINS AND USES THEREOF

<130> AL-11-C1-PCT

<140> not yet assigned

<141> 2003-08-01

<150> 60/319,446
<151> 2002-08-02

<150> 10/211,948
<151> 2002-08-01

<160> 49

<170> PatentIn version 3.2

<210> 1
<211> 669
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(666)

<400> 1
gcg gat ccc tgt gat tcc aac ccg aga ggg gtg agc gcc tac cta agc 48
Ala Asp Pro Cys Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser
1 5 10 15

cg 5
cgg ccc agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc 96
Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr
20 25 30

ctg 5
tgt ctg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc 144
Cys Leu Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr
35 40 45

tg 5
tgg tcc cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag 192
Trp Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu
50 55 60

ga 5
gag aag cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg 240
Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val
65 70 75 80

gg 5
ggc acc cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc 288
Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr
85 90 95

ca 5
cac ccc cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc 336
His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser
100 105 110

gg 5
ggc ccg cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg 384
Gly Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp
115 120 125

ccg ggg agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc Pro Gly Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe 130 135 140	432
atg cct gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc Met Pro Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu 145 150 155 160	480
ccg gac gcc cgg cac agc acg cag ccc cgc aag acc aag ggc tcc Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser 165 170 175	528
ggc ttc ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu 180 185 190	576
cag aaa gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc Gln Lys Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro 195 200 205	624
tca cag acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga Ser Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys 210 215 220	669
<210> 2	
<211> 222	
<212> PRT	
<213> Homo sapiens	
<400> 2	
Ala Asp Pro Cys Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser 1 5 10 15	
Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr 20 25 30	
Cys Leu Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr 35 40 45	
Trp Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu 50 55 60	
Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val 65 70 75 80	
Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr 85 90 95	
His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser 100 105 110	
Gly Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp 115 120 125	

Pro Gly Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe
 130 135 140

Met Pro Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu
 145 150 155 160

Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser
 165 170 175

Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu
 180 185 190

Gln Lys Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro
 195 200 205

Ser Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 3
 <211> 29
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic Primer

<400> 3
 tagggctacg tagattccaa cccgagagg

29

<210> 4
 <211> 43
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic Primer

<400> 4
 actggctcga gaccaggtca gctgcacggc ccccttgctg ggt

43

<210> 5
 <211> 53
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic Primer

<400> 5
 cctggctcga agccagtggt aagcctgtgc aacactccac cagaaaggag gag

53

<210> 6
 <211> 39
 <212> DNA

<213> Artificial sequence

<220>

<223> Synthetic Primer

<400> 6

tctaggcagc ggccgcttat catttaccgg gatttacag

39

<210> 7

<211> 672

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(672)

<400> 7

gcg gat ccc tgt gcg gat tcc aac ccg aga ggg gtg agc gcc tac cta
Ala Asp Pro Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu
1 5 10 15

48

agc cgg ccc agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc
Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile
20 25 30

96

acc tgt ctg gtg gtc gac ctg gca ccc agc aag ggg acc gtg cag ctg
Thr Cys Leu Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Gln Leu
35 40 45

144

acc tgg tcc cgg gcc agt ggg aag cct gtg caa cac tcc acc aga aag
Thr Trp Ser Arg Ala Ser Gly Lys Pro Val Gln His Ser Thr Arg Lys
50 55 60

192

gag gag aag cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg
Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro
65 70 75 80

240

gtg ggc acc cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg
Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val
85 90 95

288

acc cac ccc cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc
Thr His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr
100 105 110

336

agc ggc ccg cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag
Ser Gly Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu
115 120 125

384

tgg ccg ggg agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac
Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn
130 135 140

432

ttc atg cct gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag
Phe Met Pro Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln
145 150 155 160

480

ctc ccg gac gcc cgg cac agc acg cag ccc cgc aag acc aag ggc
Leu Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly
165 170 175

528

tcc ggc ttc ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg	576
Ser Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp	
180	185
190	
gag cag aaa gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc	624
Glu Gln Lys Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser	
195	200
205	
ccc tca cag acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga	672
Pro Ser Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys	
210	215
220	
<210> 8	
<211> 223	
<212> PRT	
<213> Homo sapiens	
<400> 8	
Ala Asp Pro Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu	
1	5
10	15
Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile	
20	25
30	
Thr Cys Leu Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Gln Leu	
35	40
45	
Thr Trp Ser Arg Ala Ser Gly Lys Pro Val Gln His Ser Thr Arg Lys	
50	55
60	
Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro	
65	70
75	80
Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val	
85	90
95	
Thr His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr	
100	105
110	
Ser Gly Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu	
115	120
125	
Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn	
130	135
140	
Phe Met Pro Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln	
145	150
155	160
Leu Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly	
165	170
175	

Ser Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp
 180 185 190

Glu Gln Lys Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser
 195 200 205

Pro Ser Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 9
 <211> 44
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic Primer

<400> 9
 tagggcgat ccctgtgcag attcgaaccc gagaggggtg agcg 44

<210> 10
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(663)

<400> 10
 tgt gcg gat tcc aac ccg aga ggg gtg agc gcc tac cta agc cgg ccc 48
 Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc acc tgt ctg 96
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc 144
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag 192
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc 240
 Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc 288
 Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccg 336
 His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg 384

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly			
115	120	125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct			432
Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro			
130	135	140	
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac			480
Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp			
145	150	155	160
gcc cgg cac agc acg acg cag ccc cgc aag acc aag ggc tcc ggc ttc			528
Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe			
165	170	175	
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa			576
Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys			
180	185	190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag			624
Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln			
195	200	205	
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga			663
Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys			
210	215	220	
<210> 11			
<211> 220			
<212> PRT			
<213> Homo sapiens			
<400> 11			
Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro			
1 5 10 15			
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu			
20 25 30			
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser			
35 40 45			
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys			
50 55 60			
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr			
65 70 75 80			
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro			
85 90 95			
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro			
100 105 110			
Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly			

115

120

125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 12

<211> 663

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(663)

<400> 12

gcg tgt gat tcc aac ccg aga ggg gtg agc gcc tac cta agc cgg ccc
 Ala Cys Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

48

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc acc tgt ctg
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

96

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

144

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

192

cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc
 Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

240

cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc
 Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

288

cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccg
 His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro

336

100	105	110	
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly	115 120	125	384
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro	130 135	140	432
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp	145 150	155	480
gcc cgg cac agc acg acg cag ccc cgc aag acc aag ggc tcc ggc ttc Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe	165	170	528
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys	180	185	576
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln	195	200	624
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys	210	215	663
<210> 13 <211> 220 <212> PRT <213> Homo sapiens			
<400> 13 Ala Cys Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro 1 5 10 15			
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu 20 25 30			
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser 35 40 45			
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys 50 55 60			
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr 65 70 75 80			
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro 85 90 95			
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro 100 105 110			

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 14
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(663)

<400> 14
 gcg gcg tgy tcc aac ccg aga ggg gtg agc gcc tac cta agc cgg ccc 48
 Ala Ala Cys Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc acc tgt ctg 96
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc 144
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag 192
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccc gtg ggc acc 240
 Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc 288
 Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccg	336
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro	
100 105 110	
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg	384
Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly	
115 120 125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct	432
Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro	
130 135 140	
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac	480
Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp	
145 150 155 160	
gcc cgg cac agc acg acg cag ccc cgc aag acc aag ggc tcc ggc ttc	528
Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe	
165 170 175	
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa	576
Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys	
180 185 190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag	624
Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln	
195 200 205	
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga	663
Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys	
210 215 220	
<210> 15	
<211> 220	
<212> PRT	
<213> Homo sapiens	
<400> 15	
Ala Ala Cys Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro	
1 5 10 15	
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu	
20 25 30	
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser	
35 40 45	
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys	
50 55 60	
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr	
65 70 75 80	
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro	
85 90 95	

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 16
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(663)

<400> 16 48
 gcg gcg gat tgy aac ccg aga ggg gtg agc gcc tac cta agc cgg ccc
 Ala Ala Asp Cys Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc tgt ctg 96
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc 144
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag 192
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc 240
 Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc	288
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro	
85 90 95	
cac ctg ccc agg gcc ctc atg cggtcc acg acc aag acc agc ggc ccg	336
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro	
100 105 110	
cgt gct gcc ccg gaa gtc tat gcgttt gcgtcc acg ccg gag tgg ccg ggg	384
Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly	
115 120 125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct	432
Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro	
130 135 140	
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac	480
Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp	
145 150 155 160	
gcc ccg cac agc acg acg cag ccc cgc aag acc aag ggc tcc ggc ttc	528
Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe	
165 170 175	
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa	576
Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys	
180 185 190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag	624
Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln	
195 200 205	
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga	663
Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys	
210 215 220	
<210> 17	
<211> 220	
<212> PRT	
<213> Homo sapiens	
<400> 17	
Ala Ala Asp Cys Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro	
1 5 10 15	
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu	
20 25 30	
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser	
35 40 45	
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys	
50 55 60	
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr	
65 70 75 80	

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 18
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(663)

<400> 18
 gcg gcg gat tcc tgy ccg aga ggg gtg agc gcc tac cta agc cgg ccc 48
 Ala Ala Asp Ser Cys Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 5 10 15
 1

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc tgt ctg 96
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc 144
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag 192
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc 240
 Page 14

Gln	Arg	Asn	Gly	Thr	Leu	Thr	Val	Thr	Ser	Thr	Leu	Pro	Val	Gly	Thr	
65					70				75					80		
cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc															288	
Arg	Asp	Trp	Ile	Glu	Gly	Glu	Tyr	Gln	Cys	Arg	Val	Thr	His	Pro		
														95		
85						90										
cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccc															336	
His	Leu	Pro	Arg	Ala	Leu	Met	Arg	Ser	Thr	Thr	Lys	Thr	Ser	Gly	Pro	
														110		
100						105										
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg															384	
Arg	Ala	Ala	Pro	Glu	Val	Tyr	Ala	Phe	Ala	Thr	Pro	Glu	Trp	Pro	Gly	
														125		
115						120										
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct															432	
Ser	Arg	Asp	Lys	Arg	Thr	Leu	Ala	Cys	Leu	Ile	Gln	Asn	Phe	Met	Pro	
														140		
130						135										
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac															480	
Glu	Asp	Ile	Ser	Val	Gln	Trp	Leu	His	Asn	Glu	Val	Gln	Leu	Pro	Asp	
														160		
145						150					155					
gcc cgg cac agc acg cag ccc cgc aag acc aag ggc tcc ggc ttc															528	
Ala	Arg	His	Ser	Thr	Thr	Gln	Pro	Arg	Lys	Thr	Lys	Gly	Ser	Gly	Phe	
														175		
165						170										
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa															576	
Phe	Val	Phe	Ser	Arg	Leu	Glu	Val	Thr	Arg	Ala	Glu	Trp	Glu	Gln	Lys	
														190		
180						185										
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag															624	
Asp	Glu	Phe	Ile	Cys	Arg	Ala	Val	His	Glu	Ala	Ala	Ser	Pro	Ser	Gln	
														205		
195						200										
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga															663	
Thr	Val	Gln	Arg	Ala	Val	Ser	Val	Asn	Pro	Gly	Lys					
														220		
210						215										
<210> 19																
<211> 220																
<212> PRT																
<213> Homo sapiens																
<400> 19																
Ala Ala Asp Ser Cys Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro																
1					5				10				15			
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu																
						20			25			30				
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser																
							35		40		45					
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys																
							50		55		60					
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr																

65

70

75

80

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 20
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(663)

<400> 20
 gcg gcg gat tcc aac tgy aga ggg gtg agc gcc tac cta agc cgg ccc
 Ala Ala Asp Ser Asn Cys Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc tgt ctg
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag
 Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys

48

96

144

192

50	55	60	
cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr			240
65	70	75	80
cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro			288
85	90	95	
cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccc His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro			336
100	105	110	
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly			384
115	120	125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro			432
130	135	140	
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp			480
145	150	155	160
gcc ccg cac acg acg cag ccc cgc aag acc aag ggc tcc ggc ttc Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe			528
165	170	175	
ttc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys			576
180	185	190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln			624
195	200	205	
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys			663
210	215	220	
<210> 21			
<211> 220			
<212> PRT			
<213> Homo sapiens			
<400> 21			
Ala Ala Asp Ser Asn Cys Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro			
1	5	10	15
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu			
20	25	30	
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser			
35	40	45	
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys			
50	55	60	

Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 22
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(663)

<400> 22
 gcg gcg gat tcc aac ccg tgy ggg gtg agc gcc tac cta agc cgg ccc
 Ala Ala Asp Ser Asn Pro Cys Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15 48

agc ccg ttc gac ctg ttc atc cgcc aag tcg ccc acg atc acc tgt ctg
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30 96

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc
 Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45 144

cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag	192
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys	
50 55 60	
cag cgc aat ggc acg tta acc gtc acg tcc acc ctg cgc gtg ggc acc	240
Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr	
65 70 75 80	
cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc	288
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro	
85 90 95	
cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccc	336
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro	
100 105 110	
cgt gct gcc ccc gaa gtc tat gcg ttt gcg acg ccc gag tgg ccg ggg	384
Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly	
115 120 125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct	432
Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro	
130 135 140	
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac	480
Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp	
145 150 155 160	
gcc cgg cac agc acg ccc cgc aag acc aag ggc tcc ggc ttc	528
Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe	
165 170 175	
tcc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa	576
Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys	
180 185 190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag	624
Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln	
195 200 205	
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga	663
Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys	
210 215 220	

<210> 23
 <211> 220
 <212> PRT
 <213> Homo sapiens

<400> 23

Ala Ala Asp Ser Asn Pro Cys Gly Val Ser Ala Tyr Leu Ser Arg Pro	
1 5 10 15	

Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu	
20 25 30	

Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser	
35 40 45	

Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 24
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(663)

<400> 24
 gcg gcg gat tcc aac ccg aga tgy gtg agc gcc tac cta agc cgg ccc 48
 Ala Ala Asp Ser Asn Pro Arg Cys Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc tgt ctg 96
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu
 20 25 30

gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser 35 40 45	144
cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys 50 55 60	192
cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val Gly Thr 65 70 75 80	240
cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro 85 90 95	288
cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccg His Leu Pro Arg Ala Leu Met Arg Ser Thr Lys Thr Ser Gly Pro 100 105 110	336
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly 115 120 125	384
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro 130 135 140	432
gag gac atc tcg gtg cag tgg ctg cac aac gag gtg cag ctc ccg gac Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp 145 150 155 160	480
gcc cgg cac agc acg cag ccc cgc aag acc aag ggc tcc ggc ttc Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe 165 170 175	528
tcc gtc ttc agc cgc ctg gag gtg acc agg gcc gaa tgg gag cag aaa Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys 180 185 190	576
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln 195 200 205	624
acc gtc cag cga gcg gtg tct gta aat ccc ggt aaa tga Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys 210 215 220	663
<210> 25 <211> 220 <212> PRT <213> Homo sapiens	
<400> 25	
Ala Ala Asp Ser Asn Pro Arg Cys Val Ser Ala Tyr Leu Ser Arg Pro 1 5 10 15	
Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu 20 25 30	

Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
 35 40 45

Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
 50 55 60

Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
 65 70 75 80

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
 85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
 100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
 115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
 130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
 145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
 165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
 180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
 195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
 210 215 220

<210> 26
 <211> 663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(663)

<400> 26
 gcg gcg gat tcc aac ccg aga ggg tgy agc gcc tac cta agc cgg ccc 48
 Ala Ala Asp Ser Asn Pro Arg Gly Cys Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

agc ccg ttc gac ctg ttc atc cgc aag tcg ccc acg atc acc tgt ctg 96
 Page 22

Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu			
20	25	30	
gtg gtg gac ctg gca ccc agc aag ggg acc gtg aac ctg acc tgg tcc		144	
Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser			
35	40	45	
cgg gcc agt ggg aag cct gtg aac cac tcc acc aga aag gag gag aag		192	
Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys			
50	55	60	
cag cgc aat ggc acg tta acc gtc acg tcc acc ctg ccg gtg ggc acc		240	
Gln Arg Asn Gly Thr Leu Thr Val Ser Thr Leu Pro Val Gly Thr			
65	70	75	80
cga gac tgg atc gag ggg gag acc tac cag tgc agg gtg acc cac ccc		288	
Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro			
85	90	95	
cac ctg ccc agg gcc ctc atg cgg tcc acg acc aag acc agc ggc ccg		336	
His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro			
100	105	110	
cgt gct gcc ccg gaa gtc tat gcg ttt gcg acg ccg gag tgg ccg ggg		384	
Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly			
115	120	125	
agc cgg gac aag cgc acc ctc gcc tgc ctg atc cag aac ttc atg cct		432	
Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro			
130	135	140	
gag gac atc tcg gtc cag tgg ctg cac aac gag gtg cag ctc ccg gac		480	
Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp			
145	150	155	160
gcc cgg cac agc acg cag ccc cgc aag acc aag ggc tcc ggc ttc		528	
Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe			
165	170	175	
ttc gtc ttc agc cgc ctg gag gtc acc agg gcc gaa tgg gag cag aaa		576	
Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys			
180	185	190	
gat gag ttc atc tgc cgt gca gtc cat gag gca gcg agc ccc tca cag		624	
Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln			
195	200	205	
acc gtc cag cga gcg gtc tct gta aat ccc ggt aaa tga		663	
Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys			
210	215	220	

<210> 27
 <211> 220
 <212> PRT
 <213> Homo sapiens

<400> 27

Ala Ala Asp Ser Asn Pro Arg Gly Cys Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15

20

25

30

Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
35 40 45

Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys
50 55 60

Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val Gly Thr
65 70 75 80

Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr His Pro
85 90 95

His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser Gly Pro
100 105 110

Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp Pro Gly
115 120 125

Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe Met Pro
130 135 140

Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu Pro Asp
145 150 155 160

Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser Gly Phe
165 170 175

Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu Gln Lys
180 185 190

Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro Ser Gln
195 200 205

Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys
210 215 220

<210> 28

<211> 44

<212> DNA

<213> Artificial

<220>

<223> Synthetic Primer

<220>

<221> CDS

<222> (2)..(43)

<400> 28
t agg gcg gat ccc gct gca gat tcg aac ccg aga ggg gtg agc g 44
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Gly Val Ser
1 5 10

<210> 29
<211> 14
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 29
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Gly Val Ser
1 5 10

<210> 30
<211> 44
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)...(43)

<400> 30
t agg gcg gat ccc tct gca gat tcg aac ccg aga ggg gtg agc g 44
Arg Ala Asp Pro Ser Ala Asp Ser Asn Pro Arg Gly Val Ser
1 5 10

<210> 31
<211> 14
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 31
Arg Ala Asp Pro Ser Ala Asp Ser Asn Pro Arg Gly Val Ser
1 5 10

<210> 32
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS

<222> (2)...(40)

<400> 32
t agg gcg gat ccc tgt gcg gat tcg aac ccg aga ggg gtg ag 42
Arg Ala Asp Pro Cys Ala Asp Ser Asn Pro Arg Gly Val
1 5 10

<210> 33

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Synthetic Primer

<400> 33

Arg Ala Asp Pro Cys Ala Asp Ser Asn Pro Arg Gly Val
1 5 10

<210> 34

<211> 42

<212> DNA

<213> Artificial

<220>

<223> Synthetic Primer

<220>

<221> CDS

<222> (2)...(40)

<400> 34

t agg gcg gat ccc gcg tgt gat tcg aac ccg aga ggg gtg ag 42
Arg Ala Asp Pro Ala Cys Asp Ser Asn Pro Arg Gly Val
1 5 10

<210> 35

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Synthetic Primer

<400> 35

Arg Ala Asp Pro Ala Cys Asp Ser Asn Pro Arg Gly Val
1 5 10

<210> 36

<211> 42

<212> DNA

<213> Artificial

<220>

<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 36 42
t agg gcg gat ccc gcg gcg tgt tcg aac ccg aga ggg gtg ag
Arg Ala Asp Pro Ala Ala Cys Ser Asn Pro Arg Gly Val
1 5 10

<210> 37
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 37
Arg Ala Asp Pro Ala Ala Cys Ser Asn Pro Arg Gly Val
1 5 10

<210> 38
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 38 42
t agg gcg gat ccc gcg gat tgt aac ccg aga ggg gtg ag
Arg Ala Asp Pro Ala Ala Asp Cys Asn Pro Arg Gly Val
1 5 10

<210> 39
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 39
Arg Ala Asp Pro Ala Ala Asp Cys Asn Pro Arg Gly Val
1 5 10

<210> 40
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 40
t agg gcg gat ccc gcg gat tcg tgt ccg aga ggg gtg ag 42
Arg Ala Asp Pro Ala Ala Asp Ser Cys Pro Arg Gly Val
1 5 10

<210> 41
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 41
Arg Ala Asp Pro Ala Ala Asp Ser Cys Pro Arg Gly Val
1 5 10

<210> 42
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 42
t agg gcg gat ccc gcg gat tcg aac tgt aga ggg gtg ag 42
Arg Ala Asp Pro Ala Ala Asp Ser Asn Cys Arg Gly Val
1 5 10

<210> 43
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 43
Arg Ala Asp Pro Ala Ala Asp Ser Asn Cys Arg Gly Val
1 5 10

<210> 44
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 44
t agg gcg gat ccc gcg gat tcg aac ccg tgt ggg gtg ag 42
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Cys Gly Val
1 5 10

<210> 45
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 45
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Cys Gly Val
1 5 10

<210> 46
<211> 42
<212> DNA
<213> Artificial

<220>
<223> Synthetic Primer

<220>
<221> CDS
<222> (2)..(40)

<400> 46
t agg gcg gat ccc gcg gat tcg aac ccg aga tgt gtg ag 42
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Cys Val
1 5 10

<210> 47
<211> 13
<212> PRT
<213> Artificial

<220>
<223> Synthetic Primer

<400> 47
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Cys Val
1 5 10

<210> 48
<211> 42
<212> DNA

<213> Artificial

<220>

<223> Synthetic Primer

<220>

<221> CDS

<222> (2)..(40)

<400> 48

t agg gcg gat ccc gcg gat tcg aac ccg aga ggg tgt ag 42
Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Gly Cys
1 5 10

<210> 49

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Synthetic Primer

<400> 49

Arg Ala Asp Pro Ala Ala Asp Ser Asn Pro Arg Gly Cys
1 5 10